

January 9, 2006

TO: Peter West
FROM: John Volkman, General Counsel
SUBJECT: Biomass and Waste in Energy Trust Renewable Energy Programs

You asked what types of waste-to-energy and biomass projects Energy Trust may support as renewable energy projects. You specifically asked if “biomass” may include liquids such as spent pulping liquor.

A. General principles

1. The Oregon direct access statute (ORS 757.600(27)) defines “renewable energy resources” as:

- (a) Electricity generation facilities fueled by wind, waste, solar or geothermal power or by low-emission nontoxic biomass based on solid organic fuels from wood, forest and field residues.
- (b) Dedicated energy crops available on a renewable basis.
- (c) Landfill gas and digester gas.
- (d) Hydroelectric facilities located outside protected areas as defined by federal law in effect on July 23, 1999.

2. Waste. The statute does not define “waste,” so the term requires interpretation. I suggest three general rules:

First, treat waste, biomass, landfill gas and digester gas as separate categories, on the principle that the legislature would not use different words to describe the same thing. Thus, for example, treat projects that use fuel based on solid organic fuels from wood, forest and field residues as biomass, not as waste projects.

Second, determine which waste projects to include in Energy Trust programs and under what conditions based on specific circumstances. There is precedent for including at least the organic components of industrial and municipal waste in renewable energy programs. However, this occurs under other laws (like the Oregon energy tax credit law¹) with specific definitions of waste for renewable energy purposes. The legislature did not define the term for Energy Trust programs, and so I would be cautious about applying other definitions without understanding the technologies and their implications.

¹ The Oregon energy tax credit law classifies any process that “obtain[s] energy resources from material that would otherwise be solid waste” as a renewable resource. ORS 469.185(5)(a)(D). Oregon law defines solid waste to exclude hazardous waste, ORS 459.005(24)(a), but include “garbage, rubbish, refuse, ashes, paper and cardboard, sewage sludge, septic tank and cesspool pumpings or other sludge, useless or discarded commercial, industrial, demolition and construction materials, discarded or abandoned vehicles or parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semisolid materials, dead animals and infectious waste.”

Third, “waste” is a sub-set of “renewable,” which suggests something other than fossil fuels and byproducts of fossil fuel combustion.² For purposes of evaluating waste heat projects (essentially, combined heat and power projects), Energy Trust treats projects that use waste heat generated by renewable fuels as renewable energy projects. A recent Oregon Department of Justice opinion holds that Energy Trust may treat projects that generate waste heat from non-renewable fuels as energy conservation projects to the extent they reduce on-site energy demand.

3. Biomass. The statute provides three criteria for biomass projects. They must: (1) be non-toxic, (2) have low-emissions; and (3) be based on solid organic fuels from wood, forest and field residues. None of these three criteria is defined in the direct access statute, so they require interpretation. There is precedent for treating gasses and liquids as biomass (see, e.g., the National Renewable Energy Laboratory, http://www.nrel.gov/clean_energy/biofuels.html; and U. S. Department of Energy, <http://www.eere.energy.gov/RE/bioenergy.html>). It would be reasonable to treat a liquid or gas that is a direct product of solid organic fuels as “biomass” if it is non-toxic and has low emissions.

B. Spent pulping liquor as biomass

Spent pulping liquor is a byproduct of the wood pulping process; it consists of lignin (an organic material that holds cellulose fibers together in trees), other wood components (e.g., resins), and processing chemicals. Pulping liquor is processed in recovery boilers where the chemicals are recovered for reuse in the pulping process and the steam is released for industrial uses and to drive electric generators. The question is whether pulping liquor that is used to generate electricity in this way biomass.

The direct-access law defines biomass as fuel with low emissions, which is non-toxic and based on solid organic fuels from wood, forest and field residues. ORS 757.600(27). See also OAR 860-038-0005(52)(a).³ “Non-toxic,” “low-emission” and “based on” are not further defined in the statute or the direct-access regulations.

When administrative agencies and courts interpret such terms, they determine whether the terms are “exact,” “inexact,” or “delegative.”⁴ Exact terms carry precise meanings that agencies apply directly, i.e., without having interpretation. Inexact terms require agency interpretation, i.e., it is unclear how the legislature would have applied them to a given situation.

² The Northwest Power Act, for example, defines “renewable” as: “a resource which utilizes solar, wind, hydro, geothermal, biomass, or similar sources of energy and which either is used for electric power generation or will reduce the electric power requirements of a consumer, including by direct application. 16 USC § 839a(16).

³ ORS 757.600(27) and OAR 860-038-0005(52)(a) define “renewable energy resources” as:

Electricity generation facilities fueled by wind, waste, solar or geothermal power or by low-emission nontoxic biomass based on solid organic fuels from wood, forest and field residues. The grant agreement between Energy Trust and the OPUC adopts the OAR definition of renewable energy. Grant Agreement section 6.a.

⁴ *Springfield Education Association v. School District*, 290 Or 217, 223-24 (1980). This categorization was also employed by the Department of Justice memorandum concerning another Energy Trust program, Memorandum from Stephanie Andrus to PUC Commissioners Beyer, Baum and Savage, May 18, 2005 at pp. 2-3.

Finally, delegative terms are used when specific applications of a standard cannot be clearly foreseen and the legislature gives an agency discretion to apply statutory policy.⁵

“Non-toxic” and “low-emission.” “Non-toxic” and “low-emission” are inexact terms. “Low emissions” is inexact because “low” is a relative concept – low compared to what? Similarly, it is unclear precisely what “non-toxic” means. What is “toxic?” Does this mean a substance that is on a federal or state list of toxins, or does the law establish an independent standard of toxicity? If so, based on what length of exposure through what media? Is the term meant to avoid a net increase in toxins, or is it an absolute bar to any toxic component? That is, if a fuel would be burned anyway, would generating electricity from it be prohibited only if it produced a net increase in toxic emissions? Because “non-toxic” doesn’t answer these and other questions, I treat it as an inexact term.

Inexact terms must be interpreted consistent with legislative intent. Here, there is no authoritative source of legislative intent apart from the statute itself. This section of the statute was intended to encourage renewable energy generation, including biomass. It would be anomalous if in doing so, the statute established higher pollution standards for biomass than apply to non-renewable generation. The fact that the legislature used inexact terms without providing standards or other interpretive guidance for these highly technical pollution issues may suggest that the legislature intended the public purposes program to rely on federal and state regulatory definitions and programs (see <http://www.epa.gov/ttn/atw/eparules.html>; <http://www.deq.state.or.us/aq/HAP/index.htm>) rather than developing a free-standing regulatory program.

At the same time, biomass facilities already have to comply with toxic and air emission laws; there would be no reason to use these terms if they meant only to apply laws that already apply. It is possible that the legislature could not entirely foresee how biomass fuels would be used or what kinds of problems they would pose, and gave the PUC (and Energy Trust) discretion to review projects that are not addressed by existing emissions and toxics laws. If so, “non-toxic” and “low-emissions” would be delegative terms. However, at this early stage in the biomass program we don’t know if there are such projects. If there are, i.e., if a project (1) poses toxicity or emissions problems and (2) is not addressed by pollution laws, these terms allow the PUC (and Energy Trust) to inquire into them.

“Based on solid organic fuels from wood, forest and field residues.” I would interpret “based on” to be synonymous with “derived from.” Spent pulping liquor is *derived from* wood, forest and field residues, and I would say it satisfies this part of the definition.

Finally, the direct access law also identifies “waste” as a renewable fuel,⁶ without any further discussion of how that term ought to be interpreted. If pulping liquor were excluded from the definition of biomass, we would need to consider whether it is a renewable waste.

⁵ *Id.*, 290 Or at 228-29.

⁶ “Renewable energy” means “electricity generation facilities fueled by wind, waste, solar or geothermal power or by low-emission nontoxic biomass” ORS 757.600(27) and OAR 860-038-0005(52)(a)